

REMARKS

This paper is responsive to the Office Action dated November 28, 2006. Applicant requests reconsideration of the claims and allowance of the application in view of the following remarks. Claims 1, 10, and 28 have been amended. Claims 38-46 have been added. Accordingly, Claims 1-10 and 28-46 are pending in the application.

Claim Rejections – 35 U.S.C. § 101

In the Office Action, Claims 1-10 and 28-37 were rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Applicant requests reconsideration. The claims recite statutory subject matter and thus meet the requirements of Section 101.

The Office Action (page 2) initially asserts that Claims 1 and 28 are directed to "an abstract idea, natural phenomenon, or law of nature." Applicant disagrees. As amended, Claim 1 reads as follows:

1. A method of operating an internal market, comprising:
using a software process executing on a computer, automatically causing a portion or all of an order to be simultaneously represented in both the internal market and an external market, wherein the internal and external markets each have a plurality of market participants and separately facilitate an exchange between the market participants, and wherein the same portion or all of the order is simultaneously represented in both the internal and external markets; and
automatically ensuring the order is executable by a market participant in at most one of the internal market and the external market, wherein the order is executable without chance of a duplicate execution in more than one of the internal and external markets.

Amended Claim 28 reads as follows:

28. A system configured to operate an internal market, comprising:
a computing component programmed to represent a portion or all of an order in the internal market and to automatically cause the same portion or all of the order to be simultaneously represented at an external market, wherein the internal and external markets each have a plurality of market participants and separately facilitate an exchange between the market participants,

wherein the computing component is further configured to automatically ensure that the order is executable by a market participant in at most one of the internal market and the external market, the order being executable without chance of a duplicate execution in more than one of the internal and external markets.

Applicant has considered the subject matter of the claims, along with the principles and case law interpreting Section 101, and respectfully submits that Claims 1 and 28 are statutory. A method of operating an internal market, as well as a system configured to operate an internal market, with definite elements defining each as set forth in the claims, are not abstract ideas, nor do they merely claim a natural phenomenon or a law of nature.

The Office Action (page 3) asserts that the claims do not require any physical transformation and that the claimed invention does not produce a useful, concrete, and tangible result. Applicant disagrees. The Office Action rightly referred to the decision in *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, 149 F.3d 1668, 47 U.S.P.Q.2d 1596 (Fed. Cir. 1998), but this decision does not support the claim rejections. Rather, the decision directly supports applicant's contention that Claims 1 and 28 recite statutory subject matter.

On March 9, 1993, Signature Financial Group, Inc. was granted U.S. Patent No. 5,193,056 entitled "Data Processing System for Hub and Spoke Financial Services Configuration." The "spokes" were mutual funds that pool their assets in a central "hub." In the aforementioned decision, the Federal Circuit held that the invention described and claimed in the '056 patent was statutory subject matter. In particular, the Federal Circuit held that "(. . .) the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces 'a useful, concrete and tangible result' -- a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades."

In similar fashion, the subject matter claimed in the present application constitutes a practical application in that, through using a software process executing on a computer, a method

is conducted in which data representing a portion or all of an order for execution at a market is simultaneously represented in both an internal market and an external market. By way of definition recited in the claims, both the internal and external markets have a plurality of market participants and each separately facilitates an exchange between the market participants. The data representing the order and the markets are further managed in which the order is executable by a market participant in at most one of the internal market and the external market. The order is executable without the chance of a duplicate execution in more than one of the internal and external markets. The useful, concrete and tangible result is an order that benefits from wider, simultaneous market exposure and which can be executed at one of the markets without the problem (faced in the prior art) where the order is unintentionally executed at *more than one* of the markets. Certainly, a method producing a result such as this is equally if not more "useful, concrete and tangible" as the method of share price calculation recited in Signature Financial Group's '056 patent.

The principles discussed in *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352, 50 U.S.P.Q.2d 1447 (Fed. Cir. 1999) likewise support applicant's contention that Claims 1 and 28 recite statutory subject matter. As explained by the Federal Circuit in this case, "[b]ecause Section 101 includes processes as a category of patentable subject matter, the judicially-defined proscription against patenting of a 'mathematical algorithm,' to the extent such a proscription still exists, is narrowly limited to mathematical algorithms in the abstract," which is not the case in the present application. *AT&T Corp.*, 172 F.3d at 1358 (Emphasis added). Further, "The notion of 'physical transformation' can be misunderstood. In the first place, it is not an invariable requirement, but merely one example of how a mathematical algorithm may bring about a useful application. As the Supreme Court itself noted, 'when [a claimed invention] is performing a function which the patent laws were designed to protect (e.g., transforming or reducing an article to a different state or thing), then the claim satisfies the requirements of Section 101.'" *Diehr*, 450

U.S. at 192 (emphasis added). The 'e.g.' signal denotes an example, not an exclusive requirement." *Id.*, at 1358-59.

The Office Action further raised the utility requirement and questioned the utility of the invention claimed in the present application. Applicant submits that the utility of the claimed invention is quite evident, especially from the foregoing remarks. The claimed feature of automatically ensuring that the order is executable in at most one of the internal market and the external market is a significant improvement over prior art methods of operating markets. Without the present invention, a market participant wanting an order simultaneously represented in more than one market could separately submit the order to multiple markets with the hope that, after the order is filled in one market, the market participant would have sufficient opportunity to withdraw the order from the other markets. However, the market participant assumed the risk that the order may still be executed in more than one of the markets before the order can be withdrawn.

The Office Action cited the decision in *Gottschalk v. Benson*, 409 U.S. 63 (1972) as rejecting a claimed invention that had "no substantial practical application," but the numerical method claimed in *Benson* is nowhere analogous to the method or system claimed in the present case. In *Benson*, the applicant claimed a method that simply converted binary-coded decimal numbers into pure binary numbers. To the contrary, the invention claimed in the present application is substantially more complex and has practical application in the technology of market trading.

The Examiner further commented that the claimed action of "automatically ensuring the order is executable by a market participant in at most one of the internal market and the external market" does not necessarily result in the execution of the order. Whether the order is actually executed is inapposite to the fact that the claims present statutory subject matter under Section 101. As noted before, one of the tangible results produced from implementing the steps of Claim 1 or from operating the programmed computing component in Claim 28 is that the

order is simultaneously available for execution in both an internal and external market, without the risk that the order may be executed at more than one of the markets.

Lastly, the Office Action (page 4) explained that a "concrete" result is one that is substantially repeatable. Applicant asserts that implementing the steps of Claim 1 or operating the computing component in Claim 28 both produce a result that is repeatable and reproducible. That is, the claimed method and system will represent a portion or all of the order simultaneously for execution in both an internal and external market without the risk that the order will be executed at more than one of the markets. The outcome is that the same portion or all of the order, if executed in one market, is not executed in another market, despite the fact the order was simultaneously available for execution in both of the markets.

Claims 2-10 and 29-37 were rejected under Section 101 for their dependence on Claims 1 and 28, respectively. Applicant submits that Claims 1 and 28, and by dependence Claims 2-10 and 29-37, recite subject matter that meets the statutory requirements of Title 35, U.S. Code. The claim rejections based on Section 101 should be withdrawn.

Claim Rejections – 35 U.S.C. § 112

Claims 1-10 and 28-37 were next rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicant requests reconsideration. The claims are definite and meet the requirements of Section 112, particularly when the specification as a whole is considered.

The Examiner requested clarification of the element of "causing an order to be simultaneously represented" as recited in Claim 1. In response, applicant notes that both the internal and external markets discussed in the present application are operable to facilitate an exchange between a plurality of market participants. A market participant, using a software process executing on a computer, is able to post an order at a market, which order is then made available to other market participants for execution. The order is thus represented in the market and can be acted upon in accordance with the rules of engagement specified by the market. In an implementation of the present application where a portion or all of an order is simultaneously

posted at multiple markets, a mirror "ELF" (electronic liquidity finder) program 50 is configured to synchronize the books at the multiple markets and ensure that the order is executed at most at one of the markets. The present application describes examples in which an order is simultaneously represented at multiple markets (order umpire 30 and external exchange 80) using a mirror ELF 50. See, e.g., page 11, lines 19-29, and more particularly page 22, line 19, to page 23, line 22, as well as page 25, line 13, to page 26, line 7, of the present application as filed.

The Examiner requested clarification of the term "facilitating an exchange" as recited in Claim 1. Applicant submits that this claim terminology is sufficiently clear, particularly in view of the description provided in the specification. For example, the Summary in the present application recites:

In accordance with an aspect of this invention, there is provided a method of facilitating trading. A set of trading processes is automatically supported, each trading process operating according to a respective trading methodology selected by a user of the trading process, each of the trading methodologies incorporating standards for using a trading platform. Orders are automatically routed from the set of trading processes to a plurality of markets in accordance with the respective trading methodologies.

Persons having ordinary skill in the art readily understand what it means to have markets that each have a plurality of market participants and separately facilitate an exchange between the market participants.

Clarification was sought with respect to the element of "ensuring the order is executable" as recited in Claim 1. This claim terminology is believed to be sufficiently clear. See, e.g., page 25, lines 13-23, of the application as filed. Nevertheless, without narrowing its scope, Claim 1 has been amended to recite "automatically ensuring the order is executable by a market participant in at most one of the internal market and the external market, wherein the order is executable without chance of a duplicate execution in more than one of the internal and external markets."

Clarification was further sought with respect to the element "uses a software process," as recited in Claim 10. Applicant submits that this terminology is clear. However, in an effort to further clarify the element without narrowing its scope, Claim 10 has been amended to recite "wherein the automatically ensuring is performed by a software process executing on a computer platform that communicates between the internal market and the external market."

The Examiner requested clarification of the element of "causing a transaction performed in one of the internal and external markets to be performed in the other of the internal and external markets" as recited in Claim 3. This element is sufficiently definite within the meaning of Section 112, second paragraph. When implementing the claimed method, a synchronization operation is performed such that a transaction performed in one of the internal and external markets is also performed in the other of the internal and external markets. An aspect of such synchronization is described, for example, at page 6, lines 18-30, of the present application. Claim 3 further clarifies this element by stating that "the transaction [is] an operation to cancel or post an order."

Clarification was sought with respect to the element of "causing an execute operation performed in one of the internal and external markets to cause a cancel operation to be performed in the other of the internal and external markets" as recited in Claim 4. As with Claim 3, this claim terminology is sufficiently clear, particularly in view of the description provided in the specification. See, e.g., page 25, lines 18-23, of the present application. When implementing the claimed method, a synchronization operation is performed such that an execute operation performed in one of the internal and external markets causes a cancel operation to be performed in the other of the internal and external markets. In this manner, an order is executed at at most one market, the order being automatically canceled in the other market(s).

The Examiner requested clarification of the element of "committing the conditional operation" as recited in Claim 5. An example of this is explained in the present application. "The mirror ELF enables the order umpire and the exchange to maintain synchronization over a

variety of operations, such as cancel, post, affirm and execute, via a protocol wherein the operation is conditionally performed at one market and the operation is committed after being reflected at the other market. The reflection may include canceling to allow one market to be in sole control of the order and therefore able to safely execute without chance of a duplicate execution." See page 25, lines 18-23. The commit operation is performed after receiving confirmation from the other of the internal and external markets that the operation has been communicated to the other of the internal and external markets.

Further, the Examiner requested clarification of the element "to separately facilitate an exchange" as recited in Claim 9. As with the term "facilitating an exchange" recited in Claim 1, discussed above, applicant submits that this element of Claim 9 is also sufficiently clear, particularly in view of the description provided in the specification and claims.

Additionally, Claim 9 is dependent on Claim 6 which recites "providing a mechanism for coupling the internal and external markets such that only one of the internal and external markets maintains the order for execution by a market participant at either of the internal market or the external market." Page 25, lines 24-26 of the present application provides an example of "coupling the internal and external markets." Claim 9 thereafter further recites "resynchronizing an order book containing orders at each of the internal and external markets before decoupling the internal and external markets, wherein the markets, once decoupled, are capable to separately facilitate an exchange between market participants." Markets that are capable of separately facilitating exchanges between market participants can engage in trading transactions with different trading processes, without regard to the other markets. See, e.g., page 11, lines 25-29; page 12, lines 11-14; and page 26, lines 4-7, of the present application. See also Figures 56 and 57, and the corresponding description of "sync books" and "update book" operations in the application.

In view of the foregoing, applicant submits that all of the claims are definite and meet the requirements of Section 112, second paragraph. For additional understanding of selected

features and aspects of the present application, applicant suggests review of the specification, at least at the following passages, some of which have been cited above:

page 5, lines 10-26;

page 6, line 6, to page 7, line 22;

page 11, line 18, to page 13, line 6;

page 25, line 13, to page 26, line 7;

page 74, line 27, to page 79, line 31; and

page 111, line 11, to page 113, line 7.

Claim Rejections – 35 U.S.C. § 103(a)

Claims 1-10 and 28-37 were next rejected as being unpatentable over Korhammer et al. (US 6,278,982) (hereinafter referred to as "Korhammer"). Applicant respectfully disagrees and requests withdrawal of the claim rejections.

With respect to Claims 1 and 28, the Office Action asserts that Korhammer discloses a method and a system in which an order is simultaneously represented in both an internal market and an external market, citing the Abstract, Figure 2, and Col. 8, lines 40-46 of Korhammer. Applicant respectfully disagrees.

It is instructive to review the actual teaching of this passage of Korhammer, which reads as follows:

When a customer 10 wishes to place an order, he/she may use trading terminal 101 to send the order to the order server 211 which may use information from the analytical engine 206 to determine when and where to place the order, based on parameters indicated by the customer. For example, the order server 211, using information from analytical engine 206, could break up a single order, routing it to more than one ECN and/or electronic exchange.

As can be seen, Korhammer does not teach or suggest the element of "automatically causing a portion or all of an order to be simultaneously represented in both the internal market and an external market . . . wherein the same portion or all of the order is simultaneously

represented in both the internal and external markets," as claimed in Claim 1. According to Korhammer, an order can be broken up, but it is the separate, different pieces of the order that are routed to more than one ECN and/or electronic exchange.

The fact that Korhammer does not simultaneously represent the same portion or all of an order in both an internal and external market is further borne out at Col. 12, lines 7-30, also cited in the Office Action. This passage reads as follows:

If it is a market order, that is an order to buy or sell at market prices, then the CCS 100 determines the market maker or ECN at the best price 420 and routes the order to the market maker or ECN member 407. If this does not fully satisfy the quantity of the customer's order 408, the next ECN or market maker at the best price is selected. This process continues until the entire order has been satisfied. After an order has been sent to its destination, the CCS awaits for return order status message from the destination 409. Upon receipt of a response from the destination, it determines whether the order was executed or not 410. If executed, it sends an execution message 411 to the customer 10 and determines if there is any quantity remaining in the order which must be satisfied 412. If there are other orders remaining from a split order, the CCS again awaits the order status for the remaining orders placed 409. If the execution was denied, in whole or in part, because the stock had already been sold or the bid or offer withdrawn, the CCS sends a rejection or cancel message 413 to customer 10. If, however, it is a market order, the order may be re-routed to 420 for further selection to determine the next ECN or market makers at the best price. After all the orders are executed or canceled, the CCS is finished with the order.

Again, it is evident that Korhammer does not teach a system in which a portion or all of an order is simultaneously represented in both an internal and external market, "wherein the same portion or all of the order is simultaneously represented in both the internal and external markets," as claimed in Claim 1. According to Korhammer, if the quantity of a customer's order 408 routed to a market maker or ECN member 407 is not fully satisfied, the next ECN or market maker at the best price is selected. This process continues until the entire order has been satisfied. A sequential representation of an order at different markets, as taught by Korhammer, does not anticipate or render obvious a method or system in which a portion or all of an order is *simultaneously represented* in both an internal and external market.

Since a *prima facie* case of obviousness under Section 103 requires that all elements of a claim be taught in the prior art, which is not shown with Korhammer, the rejection of Claim 1 should be withdrawn. Similar arguments are applicable to Claim 28, and the rejection of Claim 28 should be withdrawn.

Furthermore, the Office Action conceded that "Korhammer does not teach the step of automatically ensuring the order is executable by a market participant in at most one of the internal market and the external market." Nevertheless, the Office Action avoided addressing this element by asserting that the claim element merely recites "intended use and hence is not given patentable weight." This interpretation of the claims and of U.S. patent law is mistaken.

As to Claim 1, the method element of "automatically ensuring the order is executable by a market participant in at most one of the internal market and the external market" is a positive action to be performed. It is not merely intended use. Moreover, an assertion of "intended use" is not applicable to method claims as set forth in the present application. Patentable weight must be given to this method element, and when it is, the disclosure of Korhammer is acknowledged to be deficient.

For this additional reason, the rejection of Claim 1 under Section 103 should be withdrawn.

Further, as discussed above, Claim 28 is directed to a system configured to operate an internal market. The system comprises a computing component programmed to represent a portion or all of an order in the internal market and to automatically cause the same portion or all of the order to be simultaneously represented at an external market. The computing component is further configured to automatically ensure that the order is executable by a market participant in at most one of the internal market and the external market, the order being executable without chance of a duplicate execution in more than one of the internal and external markets.

As is evident, the computing component in Claim 28 is specially programmed to accomplish the recited elements of the claim. The computing component is thus configured in a

particular, defined manner. These elements are not merely "intended use" of a structure, but rather these elements specify the metes and bounds of how the structure is configured. As Korhammer does not disclose a programmed computing component configured the same as the computing component defined in Claim 28, the rejection of Claim 28 should be withdrawn.

Claims 2-10 and 29-37, which depend either directly or indirectly from Claims 1 and 28, respectively, are allowable over Korhammer for the same reasons as Claims 1 and 28. Moreover, Claims 2-10 and 29-37 present subject matter that is separately and additionally allowable over Korhammer.

The Office Action avoided addressing the elements of Claims 3, 4, 6, 7, and 9 on the basis that the method elements recited in the claims merely state "intended use." As noted above, an assertion of "intended use" is not applicable to these claims. Additionally, where corresponding features are found in system Claims 30, 31, 33, 34, and 36, applicant notes that the different features structurally define the computing component set forth in Claim 28.

Lastly, without conceding the propriety of the Official Notice taken by the Examiner, applicant respectfully submits that official notice of "executing orders in a market with short latencies" (Office Action, page 7) is insufficient to cure the deficiencies of Korhammer and does not support an obviousness rejection of Claims 7-8 and 34-35.

New Claims 38-46 Are Patentable Over Korhammer

New Claim 38 is directed to a computer-accessible medium having executable instructions stored thereon for operating an internal market. When executed, the instructions cause a computer to receive an order that is executable at a market and automatically cause a portion or all of the order to be simultaneously represented in both the internal market and an external market. Each of the internal and external markets have a plurality of market participants and separately facilitate an exchange between the market participants. The same portion or all of the order is simultaneously represented in both the internal and external markets. Furthermore, the instructions, when executed, cause the computer to automatically ensure that the order is

executable by a market participant in at most one of the internal market and the external market, wherein the order is executable without chance of a duplicate execution in more than one of the internal and external markets.

Korhammer does not teach the elements recited in Claim 38, particularly in view of the comments provided above relative to Claim 1. Claim 38 should be allowed.

Claims 39-46, which incorporate all the features of Claim 38 by dependence, are also patentable over Korhammer. Moreover, each of these dependent claims is patentably distinguished over Korhammer for the additional subject matter they recite. Claims 39-46 should thus be allowed.

CONCLUSION

Applicant requests further examination and allowance of Claims 1-10 and 28-46. Should any issues need resolution prior to allowance, the Examiner is invited to contact the undersigned counsel by telephone.

Respectfully submitted,

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